

1 8. What is claimed and desired to be secured by United States Letter Patent is:

A sulphurous acid generator comprising:

a supply of sulphur dioxide gas conducted in a first conduit and means for drawing
the sulphur dioxide gas through the first conduit;

a supply of water conducted in a second conduit;

a third conduit coupled to the first and second conduits comprising:

a blending portion, at least one contact containment portion, and at least one
agitation portion,

the blending portion comprising means for bringing the sulphur dioxide gas
in the first conduit and water from the second conduit into contained,
codirectional flow whereby the sulphur dioxide gas and water are
brought into contact with each other,

the contact containment portion(s) comprising a passageway through which
the sulphur dioxide gas and the water codirectionally flow in contact
with each other and in which at least a portion of the sulphur dioxide
gas reacts with water to form sulphurous acid,

the agitation portion(s) comprising means for mixing and agitating the
codirectionally flowing sulphur dioxide gas and water/sulphurous
acid to facilitate the reaction and dispersement of sulphur dioxide gas
with the water/sulphurous acid, and

means for discharging the sulphurous acid and unreacted sulphur dioxide gas,
the discharge means in communication with ambient pressure, the
first and third conduits defining an apparatus open to ambient
pressure;

a mixing tank into which the sulphurous acid and unreacted sulphur dioxide are discharged from the third conduit, the mixing tank temporarily retaining the discharged sulphurous acid in a submersion pool;

C means for facilitating and maintaining the submersion of unreacted sulphur dioxide gas discharged from ~~them~~ the third conduit into the submersion pool of sulphurous acid to substantially reduce the separation of unreacted sulphur dioxide gas from contact with the sulphurous acid to promote further reaction of the sulphur dioxide gas into the sulphurous acid;

B1 the mixing tank defining an outlet subject to ambient pressure through which the sulphurous acid may pass to exit the mixing tank;

the mixing tank, the facilitating and maintaining means, and the outlet defining an open system thereby avoiding subjecting the sulphur dioxide gas to a system pressure;

an absorption tower in communication with the mixing tank into which free floating unreacted sulphur dioxide gas passes from the mixing tank, the absorption tower comprising means for creating a flow of water counter-current to the flow of sulphur dioxide gas, the tower containing a tortuous maze of pathways through which the water and sulphur dioxide gas will pass in counter-current flow, and in which sulphur dioxide gas and water come into contact to form sulphurous acid, the absorption tower having an exhaust vent through which sulphur dioxide not reacted in the tower may pass;

a supply of unreacted sulphur dioxide gas conducted in a vent conduit in communication with the exhaust vent and means for drawing the sulphur dioxide gas through the vent conduit;

a supply of water conducted in a supplemental water conduit;

a fourth conduit comprising:

a blending portion, at least one contact containment portion, and at least one agitation portion;

the blending portion comprising means for bringing the sulphur dioxide gas in the vent conduit and water from the supplemental water conduit into contained, codirectional flow whereby the sulphur dioxide gas and water are brought into contact with each other,

the contact containment portion(s) comprising a passageway through which the sulphur dioxide gas and the water codirectionally flow in contact with each other and in which at least a portion of the sulphur dioxide gas reacts with the water to form sulphurous acid,

the agitation portion(s) comprising means for mixing and agitating the codirectionally flowing sulphur dioxide gas and water/sulphurous acid to facilitate the reaction and dispersement of sulphur dioxide gas into the water/sulphurous acid, and

means for discharging the sulphurous acid and any unreacted sulphur dioxide gas.

REMARKS

Claims 1-4 have been canceled. New claim 5 has been added and is previously allowed claim 4 rewritten in independent form and as suggested by the Examiner to address the section 112 issues. The term "substantially all" has been deleted as suggested. No new matter is being added in this newly submitted claim. The applicant requests notice of allowance as soon as possible.